Claims

1. A system for providing secure access to a controlled item, the system comprising:

a database of biometric signatures;

a transmitter subsystem comprising:

a biometric sensor for receiving a biometric signal;

means for matching the biometric signal against members of the database of biometric signatures to thereby output an accessibility attribute; and

means for emitting a secure access signal conveying information dependent upon said accessibility attribute, wherein the secure access signal comprises one of at least a rolling code, an encrypted Bluetooth™ protocol, and a WiFi™ protocol; and

a receiver sub-system comprising;

means for receiving the transmitted secure access signal; and

means for providing conditional access to the controlled item dependent upon said information.

2. A system according to claim 1, wherein the transmitter sub-system further comprises means for populating the database of biometric signatures.

3. A system according to claim 2, wherein the means for populating the database of biometric signatures comprises:

means for receiving a series of entries of the biometric signal, said series being characterised according to at least one of the number of said entries and a duration of each said entry;

means for mapping said series into an instruction; and

means for populating the database according to the instruction.

4. A system according to claim 3 further comprising:

means for providing a signal for directing input of the series of entries of the biometric signal;

means for incorporating into the secure access signal an identification field identifying the biometric signal if the signal matches a member of the database; and

means for constructing an audit trail of biometric signals provided to the biometric sensor for the purpose of accessing the controlled item.

5. A system according to claim 4, wherein the database of biometric signatures comprises signatures in at least one of a system administrator class, a system user class, and a duress class.

6. A system according to claim 5, wherein the accessibility attribute comprises:

an access attribute if the biometric signal matches a member of the database of biometric signatures;

a duress attribute if the biometric signal matches a member of the database of biometric signatures and said member belongs to the duress class; and

an alert attribute if the biometric signal does not match a member of the database of biometric signatures.

7. A system according to claim 6, wherein the controlled item is one of:

a locking mechanism of a door; and

an electronic lock on a Personal Computer (PC).

8. A system according to claim 6, wherein the biometric sensor is responsive to one of voice, retinal pattern, iris pattern, face pattern, and palm configuration.

9. A system according to claim 6, wherein the database of biometric signatures is located in at least one of the transmitter sub-system and the receiver sub-system.

10. A system according to claim 6, wherein said conditional access comprises one of:

provision of access to the controlled item if the accessibility attribute comprises an access attribute;

provision of access to the controlled item and sounding of an alert if the accessibility attribute comprises a duress attribute; and

denial of access to the controlled item and sounding of an alert if the accessibility attribute comprises an alert attribute.

11. A transmitter sub-system for operating in a system for providing secure access to a controlled item, the system comprising a database of biometric signatures, a receiver sub-system comprising means for receiving a secure access signal transmitted by the transmitter sub-system, and means for providing conditional access to the controlled item

dependent upon information conveyed in the secure access signal; wherein the transmitter subsystem comprises:

a biometric sensor for receiving a biometric signal;

means for matching the biometric signal against members of the database of biometric signatures to thereby output an accessibility attribute; and

means for emitting the secure access signal conveying said information dependent upon said accessibility attribute, wherein the secure access signal comprises one of at least a rolling code, an encrypted Bluetooth™ protocol, and a WiFi™ protocol.

12. A transmitter sub-system according to claim 11, further comprising means for populating the database of biometric signatures.

13. A transmitter sub-system according to claim 12, wherein the means for populating the database of biometric signatures comprises:

means for receiving a series of entries of the biometric signal, said series being characterised according to at least one of the number of said entries and a duration of each said entry;

means for mapping said series into an instruction; and

means for populating the database according to the instruction.

14. A transmitter sub-system according to claim 13 further comprising:

means for providing a signal for directing input of the series of entries of the biometric signal; and

means for incorporating into the secure access signal an identification field identifying the biometric signal if the signal matches a member of the database, said

identification field for use in constructing an audit trail of biometric signals provided to the biometric sensor for the purpose of accessing the controlled item.

15. A transmitter sub-system according to claim 14, wherein the database of biometric signatures comprises signatures in at least one of a system administrator class, a system user class, and a duress class.

16. A transmitter sub-system according to claim 15, wherein the accessibility attribute comprises:

an access attribute if the biometric signal matches a member of the database of biometric signatures;

a duress attribute if the biometric signal matches a member of the database of biometric signatures and said member belongs to the duress class; and

an alert attribute if the biometric signal does not match a member of the database of biometric signatures.

17. A transmitter sub-system according to claim 16, wherein the database of biometric signatures comprises signatures in at least one of a system administrator class and a system user class.

18. A transmitter sub-system according to claim 16, wherein the biometric sensor is responsive to one of voice, retinal pattern, iris pattern, face pattern, and palm configuration.

19. A transmitter sub-system according to claim 16, wherein the database of biometric signatures is located in at least one of the transmitter sub-system and the receiver sub-system.

20. A receiver sub-system for operating in a system for providing secure access to a controlled item, the system comprising a database of biometric signatures, a transmitter subsystem comprising a biometric sensor for receiving a biometric signal, means for matching the biometric signal against members of the database of biometric signatures to thereby output an accessibility attribute, and means for emitting a secure access signal conveying information dependent upon said accessibility attribute, wherein the secure access signal comprises one of at least a rolling code, an encrypted Bluetooth™ protocol, and a WiFi™ protocol; wherein the receiver sub-system comprises;

means for receiving the transmitted secure access signal; and

means for providing conditional access to the controlled item dependent upon said information.

21. A receiver sub-system according to claim 20, wherein the database of biometric signatures comprises signatures in at least one of a system administrator class and a system user class.

22. A receiver sub-system according to claim 21, wherein the accessibility attribute comprises:

an access attribute if the biometric signal matches a member of the database of biometric signatures;

a duress attribute if the biometric signal matches a member of the database of biometric signatures and said member belongs to the duress class; and

an alert attribute if the biometric signal does not match a member of the database of biometric signatures.

23. A receiver sub-system according to claim 22, wherein said conditional access comprises one of:

provision of access to the controlled item if the accessibility attribute comprises an access attribute;

provision of access to the controlled item and sounding of an alert if the accessibility attribute comprises a duress attribute; and

denial of access to the controlled item and sounding of an alert if the accessibility attribute comprises an alert attribute.

24. A receive sub-system according to claim 23, wherein the biometric sensor is responsive to one of voice, retinal pattern, iris pattern, face pattern, and palm configuration.

25. A receiver sub-system according to claim 23, wherein the database of biometric signatures is located in at least one of the transmitter sub-system and the receiver sub-system.

26. A method for providing secure access to a controlled item, the method comprising the steps of:

receiving a biometric signal;

matching the biometric signal against members of a database of biometric signatures to thereby output an accessibility attribute;

emitting a secure access signal conveying information dependent upon said accessibility attribute, wherein the secure access signal comprises one of at least a rolling code, an encrypted Bluetooth™ protocol, and a WiFi™ protocol; and

providing conditional access to the controlled item dependent upon said information.

27. A method according to claim 26, wherein the database of biometric signatures comprises signatures in at least one of a system administrator class, a system user class, and a duress class.

28. A method according to claim 27, wherein the accessibility attribute comprises:

an access attribute if the biometric signal matches a member of the database of biometric signatures;

a duress attribute if the biometric signal matches a member of the database of biometric signatures and said member belongs to the duress class; and

an alert attribute if the biometric signal does not match a member of the database of biometric signatures, and wherein the step of providing said conditional access comprises the steps of:

providing access to the controlled item if the accessibility attribute comprises an access attribute;

providing access to the controlled item and sounding an alert if the accessibility attribute comprises a duress attribute; and

denying access to the controlled item and sounding an alert if the accessibility attribute comprises an alert attribute.

29. A method for populating a database of biometric signatures in a system for providing secure access to a controlled item, the system comprising said database of biometric signatures, a transmitter subsystem comprising a biometric sensor for receiving a biometric signal, and means for emitting a secure access signal, and a receiver sub-system comprising means for receiving the transmitted secure access signal, and means for providing conditional access to the controlled item dependent upon information in said secure access signal, said method comprising the steps of:

receiving a series of entries of the biometric signal;

determining at least one of the number of said entries and a duration of each said entry;

mapping said series into an instruction; and

populating the database according to the instruction.

30. A method for transmitting a secure access signal in a system for providing secure access to a controlled item, the system comprising a database of biometric signatures, a receiver sub-system comprising means for receiving the secure access signal transmitted by a transmitter sub-system, and means for providing conditional access to the controlled item dependent upon information conveyed in the secure access signal, said method comprising the steps of:

receiving a biometric sensor by biometric signal;

matching the biometric signal against members of the database of biometric signatures to thereby output an accessibility attribute; and

emitting the secure access signal conveying said information dependent upon said accessibility attribute, wherein the secure access signal comprises one of at least a rolling code, an encrypted Bluetooth™ protocol, and a WiFi™ protocol.

31. A method for receiving a secure access signal in a system for providing secure access to a controlled item, the system comprising a database of biometric signatures, a transmitter subsystem comprising a biometric sensor for receiving a biometric signal, means for matching the biometric signal against members of the database of biometric signatures to thereby output an accessibility attribute, and means for emitting a secure access signal conveying information dependent upon said accessibility attribute, wherein the secure access signal comprises one of at least a rolling code, an encrypted Bluetooth™ protocol, and a WiFi™ protocol, said method comprising the steps of:

receiving the transmitted secure access signal; and

providing conditional access to the controlled item dependent upon said information.

32. A computer program product having a computer readable medium having a computer program recorded therein for directing a processor to provide secure access to a controlled item, said computer program product comprising:

code for receiving a biometric signal;

code for matching the biometric signal against members of a database of biometric signatures to thereby output an accessibility attribute;

code for emitting a secure access signal conveying information dependent upon said accessibility attribute, wherein the secure access signal comprises one of at least a rolling code, an encrypted Bluetooth™ protocol, and a WiFi™ protocol; and

code for providing conditional access to the controlled item dependent upon said information.

33. A computer program product having a computer readable medium having a computer program recorded therein for directing a processor to populate a database of biometric signatures in a system for providing secure access to a controlled item, said computer program product comprising:

code for receiving a series of entries of the biometric signal;

code for determining at least one of the number of said entries and a duration of each said entry;

code for mapping said series into an instruction; and

code for populating the database according to the instruction.

34. A computer program product having a computer readable medium having a computer program recorded therein for directing a processor to transmit a secure access signal in a system for providing secure access to a controlled item, said computer program product comprising:

code for receiving a biometric sensor by biometric signal;

code for matching the biometric signal against members of the database of biometric signatures to thereby output an accessibility attribute; and

code for emitting the secure access signal conveying said information dependent upon said accessibility attribute, wherein the secure access signal comprises one of at least a rolling code, an encrypted Bluetooth™ protocol, and a WiFi™ protocol.

35. A computer program product having a computer readable medium having a computer program recorded therein for directing a processor to receive a secure access signal in a system for providing secure access to a controlled item, said computer program product comprising:

code for receiving the transmitted secure access signal; and

code for providing conditional access to the controlled item dependent upon said information.

36. A system for providing secure access, the system comprising:

a biometric sensor for authenticating the identity of a user;

a transmitter for transmitting information using a secure wireless signal dependent upon a request from the user and the authentication of the user identity; and

a control panel for receiving the information and for providing the secure access requested.

37. A system according to claim 36 wherein the control panel includes a converter for receiving the secure wireless signal and for outputting the information.

38. A system according to claim 36, wherein the biometric sensor authenticates the identity of the user by comparing a biometric input from the user with a biometric signature for the user in a biometric database.

39. A system according to claim 38, wherein the biometric sensor, the biometric database, and the transmitter are located in a remote fob.

40. A system according to claim 36, wherein the secure wireless signal comprises an RF carrier and a rolling code.

41. A system according to claim 37, wherein the secure wireless signal comprises an RF carrier and a rolling code, and the converter converts the rolling code to the Wiegand protocol.

AMENDED CLAIMS

[received by the International Bureau on 13 December 2004 (13.12.04);
Claims 1, 11, 20, 26 and 29-36 amended; claims 42-44 added;
(14 pages)]

1. A system for providing secure access to a controlled item, the system comprising:

a database of biometric signatures;

a transmitter subsystem comprising:

a biometric sensor for receiving a biometric signal;

means for matching the biometric signal against members of the database of biometric signatures to thereby output an accessibility attribute capable of granting more than two types of access to the controlled item; and

means for emitting a secure access signal conveying information dependent upon said accessibility attribute; and

a receiver sub-system comprising;

means for receiving the transmitted secure access signal; and

means for providing conditional access to the controlled item dependent upon said information.

2. A system according to claim 1, wherein the transmitter sub-system further comprises means for populating the database of biometric signatures.

3. A system according to claim 2, wherein the means for populating the database of biometric signatures comprises:

means for receiving a series of entries of the biometric signal, said series being characterised according to at least one of the number of said entries and a duration of each said entry;

means for mapping said series into an instruction; and

means for populating the database according to the instruction.

4. A system according to claim 3 further comprising:

means for providing a signal for directing input of the series of entries of the biometric signal;

means for incorporating into the secure access signal an identification field identifying the biometric signal if the signal matches a member of the database; and

means for constructing an audit trail of biometric signals provided to the biometric sensor for the purpose of accessing the controlled item.

5. A system according to claim 4, wherein the database of biometric signatures comprises signatures in at least one of a system administrator class, a system user class, and a duress class.

6. A system according to claim 5, wherein the accessibility attribute comprises:

an access attribute if the biometric signal matches a member of the database of biometric signatures;

a duress attribute if the biometric signal matches a member of the database of biometric signatures and said member belongs to the duress class; and

an alert attribute if the biometric signal does not match a member of the database of biometric signatures.

7. A system according to claim 6, wherein the controlled item is one of:

a locking mechanism of a door; and

an electronic lock on a Personal Computer (PC).

8. A system according to claim 6, wherein the biometric sensor is responsive to one of voice, retinal pattern, iris pattern, face pattern, and palm configuration.

9. A system according to claim 6, wherein the database of biometric signatures is located in at least one of the transmitter sub-system and the receiver sub-system.

10. A system according to claim 6, wherein said conditional access comprises one of:

provision of access to the controlled item if the accessibility attribute comprises an access attribute;

provision of access to the controlled item and sounding of an alert if the accessibility attribute comprises a duress attribute; and

denial of access to the controlled item and sounding of an alert if the accessibility attribute comprises an alert attribute.

11. A transmitter sub-system for operating in a system for providing secure access to a controlled item, the system comprising a database of biometric signatures, a receiver sub-system comprising means for receiving a secure access signal transmitted by the transmitter sub-system, and means for providing conditional access to the controlled item dependent upon information conveyed in the secure access signal; wherein the transmitter subsystem comprises:

a biometric sensor for receiving a biometric signal;

means for matching the biometric signal against members of the database of biometric signatures to thereby output an accessibility attribute capable of granting more than two types of access to the controlled item; and

means for emitting the secure access signal conveying said information dependent upon said accessibility attribute.

12. A transmitter sub-system according to claim 11, further comprising means for populating the database of biometric signatures.

13. A transmitter sub-system according to claim 12, wherein the means for populating the database of biometric signatures comprises:

means for receiving a series of entries of the biometric signal, said series being characterised according to at least one of the number of said entries and a duration of each said entry;

means for mapping said series into an instruction; and

means for populating the database according to the instruction.

14. A transmitter sub-system according to claim 13 further comprising:

means for providing a signal for directing input of the series of entries of the biometric signal; and

means for incorporating into the secure access signal an identification field identifying the biometric signal if the signal matches a member of the database, said identification field for use in constructing an audit trail of biometric signals provided to the biometric sensor for the purpose of accessing the controlled item.

15. A transmitter sub-system according to claim 14, wherein the database of biometric signatures comprises signatures in at least one of a system administrator class, a system user class, and a duress class.

16. A transmitter sub-system according to claim 15, wherein the accessibility attribute comprises:

an access attribute if the biometric signal matches a member of the database of biometric signatures;

a duress attribute if the biometric signal matches a member of the database of biometric signatures and said member belongs to the duress class; and

an alert attribute if the biometric signal does not match a member of the database of biometric signatures.

17. A transmitter sub-system according to claim 16, wherein the database of biometric signatures comprises signatures in at least one of a system administrator class and a system user class.

18. A transmitter sub-system according to claim 16, wherein the biometric sensor is responsive to one of voice, retinal pattern, iris pattern, face pattern, and palm configuration.

19. A transmitter sub-system according to claim 16, wherein the database of biometric signatures is located in at least one of the transmitter sub-system and the receiver sub-system.

20. A receiver sub-system for operating in a system for providing secure access to a controlled item, the system comprising a database of biometric signatures, a transmitter subsystem comprising a biometric sensor for receiving a biometric signal, means for matching the biometric signal against members of the database of biometric signatures to thereby output an accessibility attribute capable of granting more than two types of access to the controlled item, and means for emitting a secure access signal conveying information dependent upon said accessibility attribute; wherein the receiver sub-system comprises;

means for receiving the transmitted secure access signal; and

means for providing conditional access to the controlled item dependent upon said information.

21. A receiver sub-system according to claim 20, wherein the database of biometric signatures comprises signatures in at least one of a system administrator class and a system user class.

22. A receiver sub-system according to claim 21, wherein the accessibility attribute comprises:

an access attribute if the biometric signal matches a member of the database of biometric signatures;

a duress attribute if the biometric signal matches a member of the database of biometric signatures and said member belongs to the duress class; and

an alert attribute if the biometric signal does not match a member of the database of biometric signatures.

23. A receiver sub-system according to claim 22, wherein said conditional access comprises one of:

provision of access to the controlled item if the accessibility attribute comprises an access attribute;

provision of access to the controlled item and sounding of an alert if the accessibility attribute comprises a duress attribute; and

denial of access to the controlled item and sounding of an alert if the accessibility attribute comprises an alert attribute.

24. A receive sub-system according to claim 23, wherein the biometric sensor is responsive to one of voice, retinal pattern, iris pattern, face pattern, and palm configuration.

25. A receiver sub-system according to claim 23, wherein the database of biometric signatures is located in at least one of the transmitter sub-system and the receiver sub-system.

26. A method for providing secure access to a controlled item, the method comprising the steps of:

receiving a biometric signal;

matching the biometric signal against members of a database of biometric signatures to thereby output an accessibility attribute capable of granting more than two types of access to the controlled item;

emitting a secure access signal conveying information dependent upon said accessibility attribute; and

providing conditional access to the controlled item dependent upon said information.

27. A method according to claim 26, wherein the database of biometric signatures comprises signatures in at least one of a system administrator class, a system user class, and a duress class.

28. A method according to claim 27, wherein the accessibility attribute comprises:

an access attribute if the biometric signal matches a member of the database of biometric signatures;

a duress attribute if the biometric signal matches a member of the database of biometric signatures and said member belongs to the duress class; and

an alert attribute if the biometric signal does not match a member of the database of biometric signatures, and wherein the step of providing said conditional access comprises the steps of:

providing access to the controlled item if the accessibility attribute comprises an access attribute;

providing access to the controlled item and sounding an alert if the accessibility attribute comprises a duress attribute; and

denying access to the controlled item and sounding an alert if the accessibility attribute comprises an alert attribute.

29. A method for populating a database of biometric signatures in a system for providing secure access to a controlled item, the system comprising said database of biometric signatures, a transmitter subsystem comprising a biometric sensor for receiving a biometric signal, and means for emitting a secure access signal capable of granting more than two types of access to the controlled item, and a receiver sub-system comprising means for receiving the transmitted secure access signal, and means for providing conditional access to the controlled item dependent upon information in said secure access signal, said method comprising the steps of:

receiving a series of entries of the biometric signal;

determining at least one of the number of said entries and a duration of each said entry;

mapping said series into an instruction; and

populating the database according to the instruction.

30. A method for transmitting a secure access signal in a system for providing secure access to a controlled item, the system comprising a database of biometric signatures, a receiver sub-system comprising means for receiving the secure access signal transmitted by a transmitter sub-system, and means for providing conditional access to the controlled item dependent upon information conveyed in the secure access signal, said method comprising the steps of:

receiving a biometric sensor by biometric signal;

matching the biometric signal against members of the database of biometric signatures to thereby output an accessibility attribute capable of granting more than two types of access to the controlled item; and

emitting the secure access signal conveying said information dependent upon said accessibility attribute.

31. A method for receiving a secure access signal in a system for providing secure access to a controlled item, the system comprising a database of biometric signatures, a transmitter subsystem comprising a biometric sensor for receiving a biometric signal, means for matching the biometric signal against members of the database of biometric signatures to thereby output an accessibility attribute capable of granting more than two types of access to the controlled item, and means for emitting a secure access signal conveying information dependent upon said accessibility attribute, said method comprising the steps of:

receiving the transmitted secure access signal; and

providing conditional access to the controlled item dependent upon said information.

32. A computer program product having a computer readable medium having a computer program recorded therein for directing a processor to provide secure access to a controlled item, said computer program product comprising:

code for receiving a biometric signal;

code for matching the biometric signal against members of a database of biometric signatures to thereby output an accessibility attribute capable of granting more than two types of access to the controlled item;

code for emitting a secure access signal conveying information dependent upon said accessibility attribute; and

code for providing conditional access to the controlled item dependent upon said information.

33. A computer program product having a computer readable medium having a computer program recorded therein for directing a processor to execute a method for populating a database of biometric signatures in a system for providing secure access to a controlled item, the system comprising said database of biometric signatures, a transmitter subsystem comprising a biometric sensor for receiving a biometric signal, and means for emitting a secure access signal capable of granting more than two types of access to the controlled item, and a receiver sub-system comprising means for receiving the transmitted secure access signal, and means for providing conditional access to the controlled item dependent upon information in said secure access signal, said program comprising:

code for receiving a series of entries of the biometric signal;

code for determining at least one of the number of said entries and a duration of each said entry;

code for mapping said series into an instruction; and

code for populating the database according to the instruction.

34. A computer program product having a computer readable medium having a computer program recorded therein for directing a processor to transmit a secure access signal in a system for providing secure access to a controlled item, said computer program product comprising:

code for receiving a biometric sensor by biometric signal;

code for matching the biometric signal against members of the database of biometric signatures to thereby output an accessibility attribute capable of granting more than two types of access to the controlled item; and

code for emitting the secure access signal conveying said information dependent upon said accessibility attribute.

35. A computer program product having a computer readable medium having a computer program recorded therein for directing a processor to receive a secure access signal in a system for providing secure access to a controlled item, the system comprising a database of biometric signatures, a transmitter subsystem comprising a biometric sensor for receiving a biometric signal, means for matching the biometric signal against members of the database of biometric signatures to thereby output an accessibility attribute capable of granting more than two types of access to the controlled item, and means for emitting a secure access signal conveying information dependent upon said accessibility attribute, said computer program product comprising:

code for receiving the transmitted secure access signal; and

code for providing conditional access to the controlled item dependent upon said information.

36. A system for providing secure access to a controlled item, the system comprising:

a biometric sensor for authenticating the identity of a user;

a transmitter for transmitting information capable of granting more than two types of access to the controlled item using a secure wireless signal dependent upon a request from the user and the authentication of the user identity; and

a control panel for receiving the information and for providing the secure access requested.

37. A system according to claim 36 wherein the control panel includes a converter for receiving the secure wireless signal and for outputting the information.

38. A system according to claim 36, wherein the biometric sensor authenticates the identity of the user by comparing a biometric input from the user with a biometric signature for the user in a biometric database.

39. A system according to claim 38, wherein the biometric sensor, the biometric database, and the transmitter are located in a remote fob.

40. A system according to claim 36, wherein the secure wireless signal comprises an RF carrier and a rolling code.

41. A system according to claim 37, wherein the secure wireless signal comprises an RF carrier and a rolling code, and the converter converts the rolling code to the Wiegand protocol.

42. A method of enrolling a biometric signature into a database of biometric signatures in a system for providing secure access to a controlled item, the system comprising said database of biometric signatures, a transmitter subsystem comprising a biometric sensor for receiving a biometric signal, and means for emitting a secure access signal capable of granting more than two types of access to the controlled item, and a

receiver sub-system comprising means for receiving the transmitted secure access signal, and means for providing conditional access to the controlled item dependent upon information in said secure access signal, said method comprising the steps of:

receiving a biometric signal; and

enrolling the biometric as an administrator if the database of biometric signatures is empty.

43. A method according to claim 42 wherein the enrolling step comprises receiving another biometric signal to confirm the enrolling of the biometric as an administrator.

44. A method according to claim 43 wherein the enrolling step is performed dependent upon generation of a feedback signal adapted to direct provision of at least one of the biometric signal and the other biometric signal.